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<120> Recombinant bacterial strains for the production of
natural nucleosides and modified analogues thereof

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<140> PCT/EP99/10416

<141> 1999-12-23

<150> MI98A002792

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<170> PatentIn Ver. 2.1

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 cloned in pUC18 so to create a fusion between the
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 cccgaaggga gaaaggcgga caggtatccg gtaagcggca gggtcggaac aggagagcgc 6000
 acgagggagc ttccaggggg aaacgcctgg tatctttata gtctgtcgg gtttcgccac 6060
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 gccagcaacg cggccttttt acggttcctg gccttttgct ggccttttgc tcacatgttc 6180
 tttcctgcgt tatccctga ttctgtggat aaccgtatta ccgcctttga gtgagctgat 6240
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<210> 11
 <211> 2297
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: cloning vector
 derived from pUC18

<400> 11
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 agctcggtag ccggggatcc tctagagtcg acctgcaggc atgcaagctt atggtgcact 120
 ctcagtacaa tctgctctga tgccgcatag ttaagccagc ccgacaccc gccaacaccc 180
 gctgacgcgc cctgacgggc ttgtctgctc ccggcatccg cttacagaca agctgtgacc 240
 gtctccggga gctgcatgtg tcagaggttt tcaccgtcat caccgaaacg cgcgagacga 300
 aagggcctcg tgatacgctt atttttatag gttaatgtca tgataataat ggtttcttag 360
 acgtcaggtg gcacttttcg gggaaatgtg cgcggaaccc ctatttgttt atttttctaa 420
 atacattcaa atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat 480
 tgaaaaagga agagtatgag tattcaacat ttccgtgtcg cccttattcc cttttttgcg 540
 gcattttgcc ttctgtttt tgctcaccga gaaacgctgg tgaaagtaaa agatgctgaa 600

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gagagttttc gccccgaaga acgtttttcca atgatgagca cttttaaaagt tctgctatgt 720
ggcgcggtat tatcccgat tgacgcggg caagagcaac tcggtcgccg catacactat 780
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cgtgacacca cgatgcctgt agcaatggca acaacgttgc gcaaactatt aactggcgaa 1080
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atactttaga ttgatttaaa acttcatttt taatttaaaa ggatctaggt gaagatcctt 1440
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cccgtagaaa agatcaaagg atcttcttga gatccttttt ttctgcgcgt aatctgctgc 1560
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acacagccca gcttgagcg aacgacctac accgaactga gatacctaca gcgtgagcta 1920
tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt aagcggcagg 1980
gtcggaacag gagagcgcac gagggagctt ccagggggaa acgctggta tctttatagt 2040

Norph11.app

cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc gtcagggggg 2100
cggagcctat ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc cttttgctgg 2160
ccttttgctc acatgttctt tcttgcggtta tcccctgatt ctgtggataa ccgtattacc 2220
gcctttgagt gagctgatac cgctcgccgc agccgaacga ccgagcgcag cgagtcagtg 2280
agcgaggaag cggaaga 2297

<210> 12

<211> 3031

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: udp and deoD
cloned into pGM746 without upstream ptac promoter

<400> 12

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agctcggtac ccggggatcc tagcaggagg gaattcttcc atggctaccc cacacattaa 120
tgcagaaatg ggcgatttcg ctgacgtagt tttgatgcca ggcgaccgcg tgcgtgcgaa 180
gtatatgtct gaaactttcc ttgaagatgc ccgtgaagtg aacaacgttc gcggtatgct 240
gggcttcacc ggtacttaca aaggccgcaa aatttccgta atgggtcacg gtatgggtat 300
cccgctctgc tccatctaca ccaaagaact gatcaccgat ttcggcgtga agaaaattat 360
ccgcgtgggt tctgtggcg cagttctgcc gcacgtaaaa ctgcgcgacg tcgttatcgg 420
tatgggtgcc tgcaccgatt ccaaagttaa ccgcatccgt tttaaagacc atgactttgc 480
cgctatcgct gaattcgaca tgggtgcgtaa cgcagtagat gcagctaaag cactgggtat 540
tgatgctcgc gtgggtaacc tgttctccgc tgacctgttc tactctccgg acggcgaaat 600
gttcgacgtg atggaaaaat acggcattct cggcgtggaa atggaagcgg ctggtatcta 660
cggcgctcgt gcagaatttg gcgcgaaagc cctgaccatc tgcaccgtat ctgaccacat 720
ccgcaactcac gagcagacca ctgccgtga gcgtcagact accttcaacg acatgatcaa 780

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gcttatgggtg cactctcagt acaatctgct ctgatgccgc atagttaagc cagccccgac 900
accggccaac acccgctgac gcgcccctgac gggcttgtct gctcccggca tccgcttaca 960
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taccaaacga cgagcgtgac accacgatgc ctgtagcaat ggcaacaacg ttgcgcaaac 1800
tattaactgg cgaactactt actctagctt cccggcaaca attaatagac tggatggagg 1860
cggataaagt tgcaggacca cttctgcgct cggcccttcc ggctggctgg tttattgctg 1920
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aagtttactc atatatactt tagattgatt taaaacttca tttttaattt aaaaggatct 2160
aggtgaagat cctttttgat aatctcatga ccaaaatccc ttaacgtgag ttttcgttcc 2220

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actgagcgtc agaccccgta gaaaagatca aaggatcttc ttgagatcct ttttttctgc 2280
gcgtaatctg ctgcttgcaa acaaaaaaac caccgctacc agcgggtggtt tgtttgccgg 2340
atcaagagct accaactctt tttccgaagg taactggctt cagcagagcg cagataccaa 2400
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```

<210> 13
<211> 3128
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: deoD cloned
        downstream ptac promoter

```

```

<400> 13
gggccaata cgcaaaccgc ctctccccgc gcggtggccg attcattaat gcagaattcg 60
agctccgaca tcataacggt tctggcaaatt attctgaaat gagctgttga caattaatca 120
tcggctcgta taatgtgtgg aattgtgagc ggataacaat ttcacacagg aggatcctag 180
caggagggaa ttcttccatg gctacccac acattaatgc agaaatgggc gatttcgctg 240

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acgtagtttt gatgccaggg gacccgctgc gtgcgaagta tattgctgaa actttccttg 300
aagatgcccc tgaagtgaac aacgttcgcg gtatgctggg cttcaccggg acttacaaag 360
gccgcaaaat ttccgtaatg ggtcacggta tgggtatccc gtccctgctcc atctacacca 420
aagaactgat caccgatttc ggcgtgaaga aaattatccg cgtgggttcc tgtggcgcag 480
ttctgccgca cgtaaaaactg cgcgacgtcg ttatcggtat ggggtgctgc accgattcca 540
aagttaaccg catccgtttt aaagaccatg actttgcgcg tatcgctgac ttcgacatgg 600
tgcgtaacgc agtagatgca gctaaagcac tgggtattga tgctcgcgtg ggtaacctgt 660
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gaattatgca gtgctgccat aaccatgagt gataaactg cggccaactt acttctgaca 1740
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 cacatgttct tctctgcgtt atccctgat tctgtggata accgtattac cgcctttgag 3060
 tgagctgata ccgctcgccg cagccgaacg accgagcgca gcgagtcagt gagcgaggaa 3120

gcggaaga

<210> 14
<211> 3934
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: udp and deoD
cloned downstream ptac promoter

<400> 14
gcgcccaata cgcaaaccgc ctctccccgc gcgttggccg attcattaat gcagaattcg 60
agctccgaca tcataacggt tctggcaaatt attctgaaat gagctgttga caattaatca 120
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aagaactgat caccgatttc ggcgtgaaga aaattatccg cgtgggttcc tgtggcgcag 480
ttctgccgca cgtaaaactg cgcgacgtcg ttatcggtat gggtgccctgc accgattcca 540
aagttaaccg catccgtttt aaagaccatg actttgccgc tatcgctgac ttcgacatgg 600
tgcgtaacgc agtagatgca gctaaagcac tgggtattga tgctcgctg ggtaacctgt 660
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agcgcagcga gtcagtgagc gaggaagcgg aaga

<210> 15

<211> 6046

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: udp and deoD
cloned downstream ptac promoter

<400> 15

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